

Application No.: 10/657,420

Docket No.: 022956-0238

REMARKS

RECEIVED  
CENTRAL FAX CENTER

JUL 8 2006

The pending Office Action addresses claims 70, 71, and 73-85. Claims 71, 74, and 80 are objected to and claims 70, 73, 75-79, and 81-85 stand rejected. Reconsideration and allowance is respectfully requested based on the amendments and remarks submitted herewith.

*Amendments to the Claims*

Applicant adds new claims 86-90, with claims 86 and 90 being independent. New independent claim 86 corresponds to claim 71 rewritten in independent form, including all of the limitations of the base claim, and new dependent claims 87-89 correspond to pending dependent claims 73, 75, and 79. New independent claim 90 corresponds to claim 80 rewritten in independent form, including all of the limitations of the base claim and any intervening claims. No new matter is added.

*Claim Rejections Pursuant to 35 U.S.C. § 102*

U.S. Patent No. 4,892,429 of Giannuzzi

The Examiner rejects claims 70, 73, 75, 76, 78, 79, and 81 pursuant to 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,892,429 of Giannuzzi. Applicant disagrees with the Examiner's rejection.

Applicant's invention relates to a knotless suture anchor system for attaching soft tissue to bone. In particular, independent claim 70 recites a suture anchor system that includes a radially expandable suture anchor with a bore extending longitudinally from a proximal end, and a tapered suture engaging tip at a distal end. A suture thread-engaging groove is formed in the suture engaging tip, and the taper of the suture engaging tip extends a distance that is at least equal to the length of the suture-thread engaging groove. The system also includes an expander pin that is configured for insertion into the bore of the suture anchor so as to effect a radial expansion of the suture anchor from a first diameter to a second, larger diameter.

At the outset, Applicant notes that Giannuzzi does not teach or even suggest a *knotless suture anchor system* for attaching soft tissue to bone. Rather, Giannuzzi is directed towards an entirely different purpose, and discloses an anchor and stress plate assembly that is adapted to *secure an*

Application No.: 10/657,420

Docket No.: 022956-0238

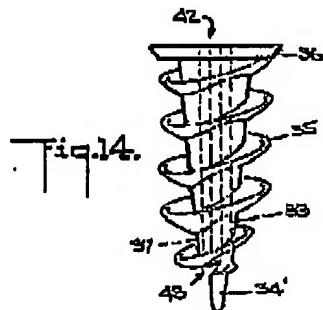
*insulation layer to the deck of a roof* without penetrating the lower surface of the deck, which is formed either of relatively soft or hard decking material.

Further, Giannuzzi does not teach or even suggest a suture anchor system that includes a *suture thread-engaging groove* formed in the *suture engaging tip* of a suture anchor, as required by claim 1. In the Office Action, the Examiner argues that reference numeral 43 of FIG. 14 is a suture-thread engaging groove formed in a suture engaging tip. This is incorrect. Reference numeral 43 is actually a notch that serves as a screw *exit hole* of the bore. In particular, as stated at Col. 7, line 66 – Col. 8, line 8 of Giannuzzi:

In the plug-type anchor shown in FIGS. 11 to 13, the length of mounting screw 38 must be appropriate to the length of bore 37 in the plug plus the thickness of the fixture to be fastened to the substrate. In order to avoid this specific requirement and make it possible to use the anchor with mounting screws of various lengths, the plug-type anchor 42 shown in FIG. 14 is provided with a notch 43 which communicates with bore 37 at the point where the bottom of the bore is adjacent drill tip 34', this tip being partially cut away to create an exit for a mounting screw passing through the bore.

Thus, the notch 43 allows a mounting screw to pass through the pin, such that a user "is not required to use a mounting screw of predetermined length, but may use mounting screws having length which more or less exceed the predetermined length yet serve the required function." (Column 8, lines 13-17.) Unlike the device recited by claim 1, which requires the suture thread-engaging groove be formed in the suture engaging tip, the notch 43 is not formed in the tip (designated by numeral 34') of the pin. Rather, as noted in Column 8, lines 5-7 and shown in FIG. 14 which is reproduced herein, the notch 43 is formed *adjacent* (or proximal) to the tip 34', and is a part of the shaft and/or threads of the pin.

Moreover, Giannuzzi does not teach or even suggest that the notch can be used to engage a suture, as also required by claim 1. In fact, the notch would appear incapable of engaging a suture, as the presence of the screw passing through the notch would prevent or interfere with any engagement of a suture thread. Further, the shape of the notch is also not effective to hold a suture. Because the notch is not located within the tip of the pin, but rather is located proximal thereto, the



BEST AVAILABLE COPY

Application No.: 10/657,420

Docket No.: 022956-0238

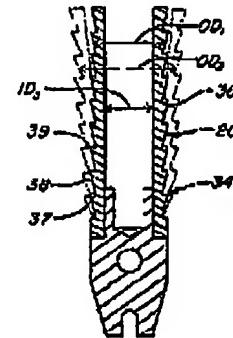
suture would slide out of notch upon insertion or other movement of the pin, or alternatively, would bind with one of the threads.

Accordingly, claim 70, as well as claims 73, 75, 76, 78, 79, and 81 which depend therefrom, distinguish over Giannuzzi and represent allowable subject matter.

U.S. Patent No. 5,176,682 of Chow

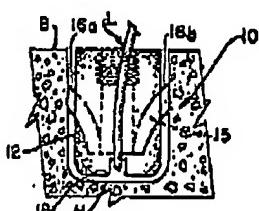
The Examiner also rejects claims 70, 73, 75, 78, and 81 pursuant to 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,176,682 of Chow. Applicant disagrees with the Examiner's rejection.

As noted above, independent claim 70 recites a suture anchor system having a radially expandable suture anchor that includes a bore extending longitudinally from a proximal end, and a tapered suture engaging tip at a distal end. A suture thread-engaging groove is formed in the suture engaging tip, and the taper of the suture engaging tip extends a distance at least equal to the length of the suture-thread engaging groove. The system also includes an expander pin that is configured for insertion into the bore of the suture anchor so as to effect a radial expansion of the suture anchor from a first diameter to a second, larger diameter, as shown, for example, in FIG. 2A of the published application, which is reproduced herein.



**FIG. 2A**

Chow does not teach or even suggest *radially expandable suture anchor*, as recited by claim 70. Rather, Chow teaches a surgical implement for permanently attaching a ligament or a suture to a bone that includes a cylindrical body 12 which is sized to be received in a hole drilled in the bone, and that includes a longitudinal central bore 14. Integrally formed with body 12 are opposed fins



**FIG. 1.**

16a and 16b that extend into bore 14. In use, a pin is driven into the bore 14, which forces the fins outwardly to engage the bone and anchor the device to bone, as shown in FIG. 1 of Chow, which is also reproduced herein. Unlike the suture anchor recited by claim 1, Chow does not disclose a *suture anchor* that is capable of radial expansion. Rather, the Chow suture anchor includes *additional components*, the fins, that are repositioned to engage the bone.

**BEST AVAILABLE COPY**

Application No.: 10/657,420

Docket No.: 022956-0238

Applicant also notes that, contrary to the assertion of the Examiner, Chow does not teach or even suggest a *tapered suture engaging tip* at a distal end of the suture anchor. In his rejection, the Examiner cites FIG. 4 of Chow, and argues that Chow teaches a "tapering tip." Applicants disagree. "The drawings must be evaluated for what they reasonably disclose and suggest to one of ordinary skill in the art." *In re Aslanian*, 590 F.2d 911 (CCPA 1979); *see also* MPEP § 2125. Figure 4 merely shows a device with *rounded corners*; it cannot reasonably be interpreted to disclose and suggest a tapering tip because Chow neither mentions nor seems to be concerned with any type of tapering tip on the distal end of the body. In fact, a tapered device would not be practicable since it would not properly fit within the bore formed in the bone as shown in Chow's FIG. 1.

Accordingly, claim 70, as well as claims 73, 75, 78, and 81 which depend therefrom, distinguish over Chow and represent allowable subject matter.

*Rejections Pursuant to 35 U.S.C. § 103*

U.S. Patent No. 4,892,429 of Giannuzzi

The Examiner rejects claim 77 pursuant to 35 U.S.C. § 103(a) as being obvious over Giannuzzi. As noted above, independent claim 70 distinguishes over Giannuzzi because Giannuzzi does not teach or even suggest a suture anchor system that includes a suture thread-engaging groove formed in the suture engaging tip of a suture anchor. At least because it is dependent from an allowable base claim, claim 77 distinguishes over Giannuzzi and represents allowable subject matter.

U.S. Patent No. 5,176,682 of Chow

The Examiner also rejects claims 82-85 pursuant to 35 U.S.C. § 103(a) as being obvious over Chow as evidenced by U.S. Patent Nos. 5,814,071, 5,964,783, 6,527,794, 6,660,023, and 6,726,707. As noted above, independent claim 70 distinguishes over Chow because Chow does not teach or even suggest a radially expandable suture anchor having a tapered suture engaging tip at a distal end thereof. U.S. Patent Nos. 5,814,071, 5,964,783, 6,527,794, 6,660,023, and 6,726,707 do not remedy the deficiencies of Chow. Accordingly, at least because they are dependent from an allowable base claim, claims 82-85 distinguish over Chow and represent allowable subject matter.

Application No.: 10/657,420

Docket No.: 022956-0238

*New Claims 86-90*

The Examiner indicated that claims 71 and 80 represent allowable subject matter, and new independent claims 86 and 90 should therefore be allowable. New dependent claims 87-89 should also be allowable because they are dependent upon an allowable base claim (claim 86).

*Conclusion*

Applicant submits that all claims are now in condition for allowance, and allowance thereof is respectfully requested. The Examiner is encouraged to telephone the undersigned attorney for Applicant if such communication is deemed to expedite prosecution of this application.

Dated: July 7, 2006

Respectfully submitted,

By   
Michelle Z. Bielunis  
Registration No.: 57,477  
NUTTER MCCLENNEN & FISH LLP  
World Trade Center West  
155 Seaport Boulevard  
Boston, Massachusetts 02210-2604  
(617) 439-2000  
(617) 310-9000 (Fax)  
Attorney for Applicant

1544044.1